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OF MARYLAND

FEDERAL COMMUNICATIONS OCHINAL OFFICE OF SECRETARY

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IN THE MATTER OF THE COMMISSION'S INVESTIGATION INTO LONG TERM SOLUTIONS TO NUMBER PORTABILITY IN MARYLAND

**CASE NO 8704** 

Second Quarterly Report of the

**Maryland Local Number Portability Consortium** 

Prepared by the Staff of the Public Service Commission of Maryland

**April** 1996

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April 22, 1996

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FEDERAL COMMUNICATIONS COMMISSION OFFICE OF SECRETARY

Daniel P. Gahagan Executive Secretary Public Service Commission of Maryland 6 St. Paul Street Baltimore, MD 21202-6806

RE: Second Quarterly Local Number Portability (LNP) Report

Dear Mr. Gahagan:

Pursuant to the Commission Order in Case 8704, Staff submits the Second Quarterly Report of the Maryland Local Number Portability Consortium. We are also providing only to the Commission a Proprietary Attachment of cost data submitted by the Consortium and summarized by Staff.

The parties have all reviewed the final draft of this report. The report itself includes Staff's positions on the issues facing the Consortium. Other parties have addressed Staff's positions and their own positions on the issues in the appendices to the report.

All Consortium members request further direction from the Commission. The main issues and positions of the parties are outlined in the report.

Very truly yours,

Geoffrey Waldau, Regulatory Economist

Ronald E Alper, Acting Staff Counsel

cc. Commissioners

All members of the Maryland LNP Steering Committee

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# TELECOMMUNICATIONS DIVISION PUBLIC SERVICE COMMISSION OF MARYLAND Second Quarterly Report on Local Number Portability APRIL 1996

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## **Executive Summary**

In accordance with the Commission's order in Case 8704, Staff submits this Second Progress Report of the Maryland Local Number Portability Consortium. The Consortium has been reorganized with a view towards implementation, forming several new committees, subcommittees and work groups. The committees have planned activities and milestones. The Consortium has achieved significant new milestones including drafting an RFP for the neutral database administration function and developing requirements for the network components that will make permanent local number portability ("LNP") a reality. The carriers have supplied cost estimates and recommendations on funding and cost recovery.

Although much progress has been made there is a divergence of positions on the cost-benefits of permanent LNP technical issues, timing of implementation and cost recovery. The Consortium members' positions on critical issues are included in the Appendix.

The Consortium identified the following issues: (1) whether to proceed with implementation of a permanent database LNP solution until the cost/benefit and cost recovery issues are resolved. (2) whether to begin implementation of permanent LNP via the local routing number ("LRN") method by 3rd quarter 1997, (3) whether to adopt the technical strategy developed by the Illinois Task Force, (4) how and from whom to recover costs for permanent LNP and (5)

whether Maryland carriers need a limited liability company (LLC) to issue an RFP, contract with and manage the neutral, third-party number porting administration center (NPAC).

The Consortium requests specific direction from the Commission on whether to continue Consortium activities. The Consortium members other than BA-MD want specific direction on whether to proceed or not proceed with implementation. In order for progress to continue, the Commission must act now on the following key issues. Other issues will most likely fall into place and be resolved within the Consortium if the Commission rules affirmatively on these key issues.

- Adopt LRN as the permanent LNP solution for Maryland.
- Establish an implementation date of 3rd Quarter 1997.
- Endorse the establishment of a limited liability company (LLC).
- Adopt the 'Competitively Neutral" cost recovery framework.

BA-MD interprets the Telecommunications Act of 1996 as requiring the FCC to act first. These issues and recommendations of Staff are more fully discussed in this report. Separate letters from most of the Consortium members on their position on LNP are attached to this report. All parties request that the Commission issue an Order stating its policy.

The Consortium process has worked well. The appendices to this report show that much progress has been made and much commonality has been established. There are some significant areas where the Consortium disagrees and we now need a Commission decision to move forward.

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## **Consortium Organization**

The Consortium structure was reorganized to best meet the planning needs for permanent LNP. The adopted organization structure is shown in Appendix 1. The Consortium Steering Committee has met several times since the last quarterly report. See Appendix 1 for meeting dates.

The function of the Steering Committee is to consider and adopt the recommendations of the various supporting committees. Much of the planning and work takes place within the individual committees. The major accomplishments of each committee to date are detailed below.

Several states (CO, GA, MD, WA, IL, NY UT, OR, IN, FL, AZ) have formed the Local Number Portability Regulatory Liaison Group to formalize the exchange of information on LNP via a bulletin board system.

## Consortium Planning

The Consortium has developed a timeline of activities and milestones.

The time line is shown in Appendix 1. The time line shows a timetable if the Consortium is to achieve a goal of implementing a permanent local number portability solution by 3rd Quarter 1997. The Consortium will need direction or an Order from the Commission on how to proceed. Based on BA-MD's interpretation of the Telecommunications Act of 1996, BA-MD believes the FCC

should act first. The co-carriers and Staff believe that the Act does not preclude state activities, hence the Consortium should continue to implement permanent LNP by 3rd Quarter 1997. Staff believes the Consortium can easily redirect its activities to be consistent with the upcoming FCC order on LNP. Appendix 2 lists the technical and public policy issues that must be addressed.

### **Committees and Teams**

The Consortium's Steering Committee oversees the work of four major committees: (1) the Legal Committee; (2) the Numbering Plan Administration Center (NPAC) Committee; (3) the Cost Recovery Committee; and (4) the Network Implementation Planning Committee

The Network Implementation Planning Committee is comprised of several teams: (1) the Requirements Team; (2) the Rating & Billing Team; (3) the Operator Services Team; and (4) the Operations Team.

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### Requirements Team

The major focus of the Requirements Team is to develop and document the baseline Switch and SCP Requirements for LRN for the State of Maryland (with ability to extend to "Bell Atlantic" territory). The Requirements Team is broken into two subteams: (1) Switch, and (2) SCP. The Requirements Team

recognized that work to develop LRN requirements was already in progress in Illinois. Therefore, the team agreed to use the Switch and SCP draft requirements developed in the Illinois Workshops ("Illinois Requirements") as a place to begin evaluating Maryland's needs and to either adapt or adopt these requirements as appropriate for Maryland.

Switch Requirements: The Maryland Switch Requirements Subteam was formed in December. Since that time there have been several meetings. Drafts of the LRN Switch Requirements document from the Illinois workshop have been available since November. A considerable amount of time has been spent understanding and commenting on that document by team members. In these meetings, the Illinois requirements document was reviewed in detail, and Maryland specific needs were documented. A document editor was assigned (Joe Lichter, [AT&T affiliate] Lucent Technologies). See Appendix 3 for a sample of the Maryland switch requirements document. It should be noted that the Requirements documents appended to this report are "works in progress". BA-MD provided a letter discussing BA-MD's concerns with the Illinois Requirements. See Appendix 4

SCP Requirements: Drafts of the Illinois LRN SCP Requirements document have been available only since January. Therefore, additional time has to be built into the schedule to allow team members who were less familiar

with the document to begin identifying any Maryland specific needs that were not supported in the Illinois requirements. The SCP Subteam has had a detailed document review. The team began documenting Maryland issues in March, is in the process of assigning an editor and expects to release a first draft of the Maryland SCP Requirements in mid-April.

# **Technical Strategies**

The requirements team has been unable to agree on all the technical requirements. The two key technical (economic) issues in question are the need for (1) query reduction and (2) setting a single platform, trigger standard and service logic. These technical issues are discussed in more detail in Appendix 5 and the letter supplied by BA-MD. (See Letter from Mary Vaden to Geoffrey Waldau, dated Feb. 29, 1996) BA-MD believes these are technical issues and other parties believe they are business and economic issues. Briefly, Bell Atlantic and several other RBOCs could not accept the Illinois switch requirements in their entirety, so they requested that Bellcore develop alternative and additional requirements that build upon the ICC workshop specifications. There are two options.

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Option 1 Adopt the Illinois strategy. Implement LNP in Maryland based on switch/SCP requirements defined in the Illinois Workshop with minor changes requested by the Maryland teams that could be accommodated in the 2nd Quarter 1997 vendor release of LNP. During the next year, evaluate alternative, or additional

requirements on a technical and competitively neutral basis for possible implementation at a later date.

Option 2 Wait for Bellcore to develop a plan for new or additional requirements and switch modifications that build upon those developed by the Illinois Workshop and associated cost savings estimates. BA-MD believes that this possibly will lead to delay. Other parties believe this will almost certainly lead to delay (e.g., 12-18 months for significant changes, although an exact delay has not been quantified).

Under Option 2, any cost savings and any delay have not yet been quantified. Another issue is whether Option 2 can maintain competitive neutrality (same potential for good call quality for all carriers). It has been suggested that BA-MD call set-up time may be slightly quicker than CLECs with look ahead. Costs, delay and call quality have not been quantified at this time. BA-MD indicates that estimates of impacts from switch and SCP vendors may be available in April 1996.

# Rating and Billing Team

The Rating and Billing Team was established in October. The main activity of this team is to develop and document Rating & Billing Switch Requirements for Maryland. The team developed a mission and scope statement which included:

 Team will identify the impacts on Recording, Rating, and Billing and focus on Service Provider Portability with an evolution to Geographic Portability

- Team will identify billing strategies and alternatives for LRN
- Team will identify and develop requirements for end user billing impacts as well as carrier billing impacts of LRN
- Team will identify and correct the process and data elements supporting recording, rating & billing when problems with LNP are identified for end user billing and carrier access/settlements billing

Appendix 3 shows a sample of the call flow document. Some progress was made during a meeting in March, and an editor was identified to write the requirements document. The first draft of Maryland Rating & Billing Requirements have been incorporated into the draft Switch Requirements and can be found in Appendix 3. Bell Atlantic's position stated in a letter is contained in Appendix 4..

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### **Operator Services Team**

The primary responsibility of the Operator Services Team is to develop and document the Operator Services Requirements for LRN for the State of Maryland. This team had agreed to utilize the existing Illinois Workshop draft Operator Services Requirements as a starting place for Maryland and to adopt or adapt these requirements to meet any identified Maryland-specific needs. This team has documented Maryland issues and has identified the Maryland

document editor (Zoltan Miko, Nortel). A copy of the Maryland Operator Services Requirements addendum can be found in Appendix 3.

## **Operations Team**

The mission, scope, major focus and deliverables of the Operations Team are noted below:

Mission: Establish a comprehensive operations plan which enables excellent customer service and smooth interworking between service providers.

This includes development of a detailed implementation plan for LRN including a roll-out schedule based upon Steering Committee recommendation.

Scope: Operations Team will focus on inter-service provider processes and interfaces — which includes 911, customer ordering, provisioning, and maintenance. The Operations Team will coordinate the actual implementation of LRN based upon Steering Committee direction and oversight.

Major Focus:

- Service Order Provisioning including NPAC
- Maintenance
- Network Management e.g., Call Gapping
- Network Engineering -- e.g., Traffic Data Collection

## Major Outputs/Key Deliverables

- Inter-Carrier Provisioning Procedures for an End User's LNP Service (Initial and Ongoing Process)
- Inter-Carrier Maintenance/Repair Procedures for an End User's LNP Service (Initial and Ongoing Process)

 Detailed Implementation Plan that Includes End-to-End Test Plan and Procedures and Office Roll-Out Schedule

The Operations Team is to establish (and eventually implement with Commission approval) a comprehensive operations plan which enables excellent customer service and smooth interworking between service providers. The Operations Team will focus on the inter-service provider processes and interfaces (including 911, customer ordering and provisioning). The Operations Team has both a planning and implementation role. The initial planning activities began at the first meeting in mid-March at the Maryland PSC.

### **NPAC/SMS** Committee

The Number Porting Administration Center (NPAC) and Service

Management System (SMS) Committee's primary role is to develop an implementation plan including the drafting of the SMS RFP, the selection of the neutral database administrator and supporting hardware and software, testing and turn-up of the SMS for the State of Maryland. The team agreed to utilize Illinois Workshop RFP for LRN as a starting point and to make the necessary changes to support Maryland. During this update period, the RFP drafting team has had several document reviews. A final draft of the Maryland RFP was submitted to the Legal Team and the Steering Committee in March for review and approval. The RFP would then go out to the potential vendors/bidders in

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April. A copy of the final draft of the RFP will be available in April. A few illustrative pages of the RFP are contained in Appendix 3.

# **Legal Committee**

The Legal Committee continues to focus on supporting activities of the Consortium and in particular, the work needed for the NPAC. During this update period, the Legal Committee has been involved in several areas: (1) Antitrust concerns, (2) determining if and how a Limited Liability Corporation should be formed, (3) forming a Bidding Proposal, (4) "Chinese Wall" Agreement, and (5) Non-Disclosure Agreement.

The activity of the Consortium raised antitrust concerns. After discussion with the antitrust division of the Maryland Attorney General's office, the Legal Committee concluded that the existing level of supervision by the State was adequate. A business review letter will be sent to the Attorney General's office.

# **Limited Liability Company (LLC)**

The Committee proposed that a Limited Liability Company (LLC) be used to procure the NPAC, primarily to protect the carrier/members from individual liability. The LLC would issue the Request for Proposal, enter into a contract with and supervise the NPAC. The Legal Committee developed an LLC

operating agreement and a summary of potential responsibilities. (See Appendix 6).

Questions and concerns were raised about the need for a formal legal entity to perform these functions, the timing of its establishment and its duties and responsibilities. The Steering Committee voted on forming an LLC. The Carriers that voted to form and participate in the LLC were AT&T, MCI, MFS, TCG and Sprint. BA-MD does not want to participate in the formation or operation of the LLC at this time. Cellular One abstained from the vote.

The Legal Committee developed the Bidding Proposal which was revised and approved by the Consortium. The Legal Committee drafted a "Chinese Wall" and Non-Disclosure Agreement. The Chinese Wall Agreement requires that RFP drafters who also want to be bidders to not divulge sensitive information to others in the company. These agreements have been reviewed and adopted by the Steering Committee and circulated for signing. BA-MD is in the process of final review.

On April 2, the Consortium adopted (although BA-MD abstained from voting) on the LLC and NPAC framework. Details are presented in Appendix 6.

The Legal Committee will be reviewing the Maryland Draft RFP, and further status on the RFP will be provided in the next Staff Quarterly Report.

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## **Cost Recovery Committee**

The role of the Cost Recovery Committee is to develop cost estimates for LNP (interim and permanent) and a method for recovering those costs. A first estimate of total costs for local number portability for local exchange and IXC networks has been developed. The CLECs are not seeking specific Commission authority for the recovery of their costs. Bell Atlantic does seek cost recovery authority from the Commission. Three methods of cost recovery have been identified from which the Commission could choose

## **Commission Actions**

In its Case 8584 Phase II Order, the Public Service Commission of Maryland reiterated its interest in fostering a competitive network of networks for the future provision of telecommunications services in Maryland. At the January 17, 1996 administrative meeting, the Maryland Commission expressed interest in LNP cost recovery but decided to defer approval of the Stipulation and Agreement which was signed by six carriers in Maryland (AT&T, MCImetro, Sprint, TCG, MFS-I, CATV). The Commission asked the Consortium to come forward quickly with cost recovery information.

Given the magnitude of the cost, Bell Atlantic suggested to the Commission a "Societal Cost-Benefit Analysis" be completed prior to any decision to proceed with implementation. (See, Letter from John Dillon, BA-MD

Vice President, External Affairs to the Maryland Commission dated January 12, 1996.)

Cost estimates and benefits were developed by the Consortium. Staff/
Gregory Carmean, Executive Staff Director, suggested that the Commission be
presented with the two policy options and the associated costs and benefits.

The options are RCF (the baseline option), and permanent LNP (the option for which incremental costs and benefits are measured).

## Permanent LNP Costs

In order to estimate permanent LNP costs, the Consortium decided that it needed a consistent set of assumptions by which to develop the cost estimates. Each option contains a series of reasonable technical policy choices and assumptions associated with that option. Hypothetical market share assumptions of 35 percent (with 5% non-porting) under permanent LNP and 20% under RCF are used for the purpose of the cost analysis. All parties agreed that these assumptions were very sensitive and would be used only for the purpose of the cost benefit analysis, and not for any other purpose. These market penetration assumptions were agreed to only for the purpose of the analysis.

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The cost estimation framework (redacted) is presented in Appendix 7. The actual cost estimates for each carrier (and vendors where available) are detailed

in the Proprietary Attachment. Disputed cost assumptions are detailed in Appendix 8.

The non-discounted, incremental permanent LNP cost estimates for all major carriers in Maryland summed over five years are as follows:

Table 1.
Incremental Permanent LNP Costs (Non-discounted)
All Carriers
Summed for Five Years

# (Millions of Dollars)

Network costs	<b>\$ 69</b> .1
Operating Support Systems	<b>\$ 33</b> .7
NPAC Costs	<b>\$ 30</b> .0
TOTAL	<b>\$132</b> .8
Avoided RCF Costs	<b>\$7</b> 0.7

The Maryland carriers included in the study are BA-MD, AT&T (local), AT&T (long distance), MCI Communications, MCImetro, Sprint (long distance), TCG, MFS Intelenet, MFS Communications, and Armstrong Telephone Company. The costs are sums of the independent representations by carriers and their vendors. They were not validated by the Consortium. The costs include initial hardware and software costs and recurring costs. Due to the proprietary nature of the cost data submitted by the carriers, only Staff reviewed and summarized the cost estimates.

The above table does not include all the costs submitted by the carriers.

After reviewing the cost estimates, Staff decided that certain costs estimated by BA-MD and co-carriers should not be included. For BA-MD, churn costs and some OSS costs were excluded. For CLECs, RCF tariffed rates paid to BA-MD were not included. Disputed costs which are not included in the above table are as follows:

LNP Costs Allocated

to Other Bell Atlantic states See Proprietary Attachment

CLEC rates paid for RCF

See Proprietary Attachment

The reasons for excluding these costs are discussed in Appendix 8 (Disputed Cost Assumptions)

## Permanent LNP Benefits

The benefits of permanent local number portability are discussed in Appendix 9 (Deficiencies of RCF). Many of the incremental benefits of permanent LNP will necessarily have to be expressed in qualitative terms such as avoided problems which would be encountered with RCF (e.g., CLASS Service breakage, signaling and competitor service quality degradation, accelerated number exhaust). Some benefits may be quantified (e.g., avoided

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RCF routing costs). BA-MD maintains that the benefits have not been quantified.

By contrast, BA-MD believes there is not yet sufficient information available to determine if the benefits of LNP outweigh the costs. While BA-MD believes that RCF is a suitable interim solution, it is not BA-MD's intent to characterize RCF as a permanent number portability solution.

The CLECs and Staff believe that the benefits of permanent LNP do outweigh the costs. RCF is definitely <u>not</u> a permanent solution. Sufficient information is available to confirm that LRN should become the national permanent solution.

# Cost Only Comparison

The first economic analysis is a cost-only comparison between RCF and permanent LNP. A cost-only comparison examines only the relative costs of the two technologies without any reference to incremental benefits. All parties agree that permanent LNP has some incremental technical benefits. However, a cost-only comparison would be the strongest form of proof that permanent LNP should be adopted.

MCImetro representative, Senior Staff Specialist Steve Addicks ( with AT&T Technical Staff member Promod Bhagat concurring), provided an analysis for network costs (excluding OSS and NPAC costs) The cost-only comparison

shows Permanent LNP costs and RCF costs as they vary with CLEC market share or time. See Appendix 10. RCF costs grow at a rapid rate and directly with changes in CLEC market share. Permanent LNP has a high initial cost, but grows only due to carrying costs (e.g., maintenance). There may be a cross over at some CLEC market share where permanent LNP becomes less expensive than RCF. The cross-over point will depend on the relative growth in network costs and relative OSS and NPAC costs. If it is anticipated that future CLEC market share would someday exceed this cross over point, then implementation of permanent LNP now would result in lower overall cost.

OSS costs were not included in the MCImetro comparison. MCImetro believes costs for OSS modifications are more closely related to competition in general and costs associated with permanent LNP versus RCF will be generally similar in magnitude. BA-MD believes there will be additional permanent LNP specific costs, not related to competition. Staff has not studied the issue.

## Reliability of Estimates

Many of the estimated network costs reflect initial quotations from equipment vendors. Vendors typically provide initial quotations for planning purposes. Negotiations follow between carrier and vendor and a final price is eventually agreed upon.

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The switch vendor estimates presented by BA-MD are pass-zero which means that the final price can be as much as 50 percent lower than the estimate or 100 percent higher. Staff called all large switch and OSS vendors (Lucent, Nortel, Bellcore) and asked for more finalized quotations for the Commission's review. To the extent that there were any updated quotations, these are presented in the Proprietary Attachment. Of course, more finalized network and OSS costs estimates would result from the negotiations process and more finalized NPAC cost estimates would be available after the RFP process.

Staff also called all potential NPAC vendors who declared an interest in bidding for the NPAC function in Maryland to provide a preliminary price range if possible. These price ranges are also reflected in the Proprietary Attachment.

The vendors were told about the Commission's administrative meeting in which the Commission was asked to decide whether to approve the LRN call model. At the administrative meeting, BA-MD presented its bottom line cost range for all LNP network components as a range of \$64 - \$124 million. This figure included the vendors costs but did not include third-party neutral database administration (NPAC) or operating costs. The Commission expressed concern about these costs and was unwilling to approve the Stipulation and Agreement which was signed by AT&T, MCI, Sprint, TCG, MFS, and Cellular One in Maryland.

Staff gave the vendors an opportunity to revise their estimates and reduce their prices to Bell Atlantic and narrow the price range. The vendors were told

any revised estimates would be strictly confidential and would only be viewed by the Staff and the Commission. The vendors were told that a lower price would increase the probability that the Commission will approve LRN as the call model in Maryland and approve the funding of permanent database LNP in Maryland.

Staff also asked what portion of the quoted costs are truly incremental to LNP and how that should be determined. The vendors said that their cost estimates were incremental to LNP.

Staff admonished the vendors that this was their opportunity to get before the Commission a more final cost range. It could be their last opportunity because the Commission may rule one way or the other. The price changes, if any, are reflected in the Proprietary Attachment.

The CLECs and Staff are now asking the Commission to rule that LRN should be the permanent solution in Maryland.

## **Cost Recovery Options**

The Consortium developed a list of LNP cost recovery options (e.g., who pays and the method to effectuate payment). These are shown below:

- <u>CLECs Pay</u> Competitors recover or absorb their own costs and pay BA-MD for BA-MD's costs
- All Pay Their Own Each Carrier absorbs or recovers its own costs and contributes to shared costs (e.g., NPAC/SMS)
- <u>Fund Pool</u> Each carrier pays into a fund pool and draws from that pool.

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Cost recovery methods are as follows:

- Per-Line surcharge or rate adjustment to end-user customers
- Embedded in normal cost of service
- Up front and ongoing cash payment from competitors

The Consortium considered many of the above options but could not come to agreement on cost recovery. Two alternative frameworks were developed, one by BA-MD and the other by the co-carriers and Staff. The CLECs and the Staff developed a framework which reflects a consensus of a that group. This framework is presented in Appendix 11

# Other Cost Recovery Issues

The Cost Recovery Committee has also worked on LNASC/SMS cost recovery issues such as: (1) how the contractor will receive compensation; (2) how compensation requirements will be shared among the carriers using the services; and (3) miscellaneous issues such as resale of downloads from the NPAC, sale of SCP functionality. RFP/RFQ respondents will provide several compensation options e.g., fixed fee, (2) transaction-based. The transactions would include uploads to the contractor from the carriers, downloads from the contractor databases to the carrier databases and possibly other types of transactions such as dispute resolution. These compensation options will be detailed in the RFP/RFQ.

## Staff's Position on the Issues

The following section provides Staff's positions on the issues which are listed in Appendix 2. Each member of the Consortium was given the opportunity to provide their positions on the issues as well. Those position papers are included in Appendices 4 and 12. The Steering Committee agreed that, for the sake of efficiency, the parties could comment on Staff's positions but not on each others' positions. The Commission may decide that it wants the parties' to comment on each others' positions at some point in the future.

### **ISSUE 1: COST-BENEFITS**

Staff believes LNP is in the public interest and that the next step from interim to permanent LNP is societally cost-beneficial. The foundation for this belief is stated herein. For high CLEC penetration rates, permanent LNP appears to be more cost effective than RCF from a total "network of networks" standpoint. However, even for low penetration rates, the benefits of permanent LNP in creating competitive neutrality from a technical standpoint outweigh the costs.

Staff disputes some of the cost estimates, and has adjusted the costs to reflect what Staff believes to be the most likely scenario: ubiquitous national deployment of permanent LRN. The magnitudes of the adjustments would not